

What is Claimed is:

1. A method of communication between a mobile station and a base station in a mobile communication system, comprising the steps of:

(1) when a mobile station receives a data transmission request, providing one portion of a period of a data frame with regular number and arrangement of down link slots and up link slots and the other portion of the data frame with irregular number and arrangement of down link slots or/and up link slots depending on characteristics and amount of subscriber data to be transmitted;

(2) determining a transmission type according to which a communication is executed using a competition period for determining priorities of the subscriber data, a reservation period for making a reservation for time slots for use in transmission of the subscriber data, and an assignment period for assigning a memory period according to an amount of the subscriber data, which periods are selectively and respectively included in the one portion of the data frame and in the other portion of the data frame; and,

(3) providing the data frame according to the transmission type and transmitting to the base station.

2. A method as claimed in claim 1, wherein each of the competition period, the reservation period and the assignment period selectively uses a packet signal channel for transmission and reception of a packet data signaling message, a packet data channel for direct transmission and reception of a packet data to be transmitted, a packet control channel for identifying the packet data in transmission and reception of the packet data.

3. A method as claimed in claim 1, wherein the competition period, the reservation period and the assignment period have priorities of the reservation period, the assignment period and the competition period.

4. A method as claimed in claim 1, further comprising the steps of:

5 the base station receiving the data transmitted from the mobile station; and,  
transmitting the data to a receiver side according to the determined transmission type.

5. A method of communication between a mobile station and a base station in a mobile communication system, comprising the steps of:

10 (1) determining presence of a request for transmission of data from a mobile station,  
periodically;

(2) determining a transmission type according to service options for the mobile station,  
if the request for transmission of data from a mobile station is present; and,

(3) providing a transmission frame according to the transmission type and transmitting  
the transmission data to the base station.

15 6. A method as claimed in claim 5, wherein the transmission type includes the steps of;

(6-1) determining the transmission of being a reservation transmission,

(6-2) determining a reservation characteristic if the transmission type is the reservation  
transmission as a result of the determination in the step (2),

20 (6-3) determining a data to be transmitted of having an amount possible to transmit using  
one slot, if the transmission type is not the reservation transmission as the result of the

determination in the step (2), and

(6-4) determining a number of slots required for transmission of the amount of the data if the amount of the data to be transmitted is greater than one slot amount of data as a result of determination in the step (6-3).

5           7. A method as claimed in claim 6, wherein the reservation characteristic means a size and a period of a reserved slot.

8. A method as claimed in claim 5, further comprising the step of the mobile station identifying a response message after the transmission of a data frame to the base station.

10           9. A method as claimed in claim 5, wherein the transmission type is determined using a competition period for determining priorities of the data, a reservation period for making a reservation for time slots for use in transmission of the subscriber data, and an assignment period for assigning a memory period according to an amount of the subscriber data.

15           10. A method as claimed in claim 5, wherein the step (3) includes the steps of;  
receiving the transmitted data, determining the transmission type of being the reservation transmission, and executing the reservation transmission using the reservation slot if the transmission type is the reservation transmission as a result of the determination,

determining the transmission type of being the assignment transmission if the transmission type is not the reservation transmission as a result of the determination, and executing the assignment transmission using the assignment slot if the transmission type is the

assignment transmission as a result of the determination, and  
executing the competition transmission using the competition slot if the transmission type  
is not the assignment transmission as a result of the determination.

11. A method as claimed in claim 10, wherein the base station determines reception of  
5 a data frame during every competition period, and waiting for the next competition period if the  
data frame is not received.

12. A structure of a data frame for use in communication between a mobile station and  
a base station in a mobile communication system, the data frame having a static period having  
at least one or more than down link slots and at least one or more than one up link slots, both  
10 assigned thereto regularly and alternatively and a dynamic period having down link slots and up  
link slots, both assigned thereto irregularly, the structure comprising:

a competition period for determining a priority of data to be transmitted from the mobile  
or the base station during each of the static period or the dynamic period;

a reservation period for making a reservation for a slot for use in transmission of the data;

15 an assignment period for assigning a memory period according to an amount of the data,  
wherein the competition period, the reservation period and the assignment period are provided  
selectively.

13. A structure of a data frame as claimed in claim 12, wherein a number of slots in each  
of the competition period, the reservation period and the assignment period is varied with  
20 characteristics of information and an amount of data to be transmitted from the base station or

the mobile station.

14. A structure of a data frame as claimed in claim 12, wherein a number of slots in each of the competition period, the reservation period and the assignment period is varied with a service option for the base station or the mobile station.

5           15. A structure of a data frame as claimed in claim 12, wherein, when the data frame is transmitted through the up link slot, the data frame includes;

          a first parameter for representing a content of the data frame,

          a second parameter for representing a processing priority of the data frame,

          a third parameter for representing a periodicity or non-periodicity of request for time  
10       slots, and

          a fourth parameter for representing information on a number of required slots or periods of slot requests in requesting the time slots.

16. A structure of a data frame as claimed in claim 12, wherein, when the data frame is transmitted through the up link slot, the data frame includes;

15           the fifth parameter for representing the frame being a pure packet data, or selectively representing the packet data and a time slot request;

          a sixth parameter for representing the data frame of an initial transmission packet, representing the data frame of a re-transmission packet, or selectively representing a first data frame of data frames of successive packets, and

20           a seventh parameter for selectively representing a periodicity or a non-periodicity of time

slot requests.

17. A structure of a data frame as claimed in claim 12, wherein, when the data frame is a control frame transmitted through the up link slot, the data frame includes;  
a parameter for representing a confirmation of reception of the data frame.